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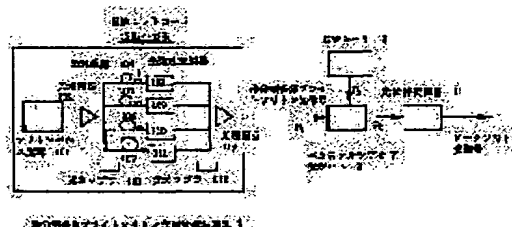
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## (54) SOLITON OPTICAL COMMUNICATION SYSTEM AND ITS LIGHT TRANSMITTER/RECEIVER

## (57)Abstract:

PURPOSE: To suppress timing jitter caused by a Gordon house effect by inverting on/off of a bright soliton optical signal and generating an inverted optical signal providing a phase difference being a dark soliton condition to a phase of a light.

CONSTITUTION: A soliton pulse light source 101 generates a pulse train, it is branched into four by a photocoupler 103, optical delay circuits 104-107 delay respectively each pulse trains to be deviated by 0, 25, 50, 75 ps relatively and respectively and luminous intensity modulators 108-111 apply digital modulation to the pulse train. The polarized wave state of each of the 4 systems is set to be identical by polarized wave controllers 128a, b, c, d. Optical signals are synthesized by a photocoupler 112 and a bright soliton optical signal subjected to four multiplexing is generated. When a time division multiplex optical signal is made incident onto a port P1 of an EXOR optical gate 3 and an output light of a CW laser 2 is made incident onto a port P2, the optical signal is converted into an EXORed outputs of the both, that is, the optical signal resulting from inverting on/off of the bright soliton optical signal and it is outputted from a port P3. The phase is shifted by a  $\pi$  radian in the middle of a notch of a dark pulse optical signal through the modulation of an optical phase modulator 4 to obtain a dark soliton signal transmission optical signal.



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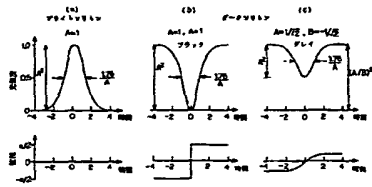




【図11】



【図12】



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